

CLAIMS

We claim:

1. An apparatus for separating and neutralizing entrained ammonia from an oil stream being removed from a refrigeration system comprised of:
 - a) a treatment tank for holding an aqueous media;
 - b) a closed receiving tank for receiving an ammonia-entrained oil supply from said refrigeration system;
 - c) a circulation pipeline having a first end and a second end with said first end of said circulation pipeline being oriented in the bottom of said treatment tank and in fluid communication therewith and with said second end being oriented in the top of said treatment tank and in fluid communication therewith;
 - d) means for pumping said aqueous media through said circulation pipeline, located intermediate said first end and said second end of said circulation pipeline;
 - e) means for drawing gases from said receiving tank and introducing said gases to said aqueous solution;
 - f) means for controllably introducing a neutralizing agent into said aqueous solution;
 - g) means for connecting said receiving tank to said refrigeration system;
 - h) means for draining said receiving tank, and
 - i) means for discharging said aqueous mixture.
2. The apparatus of claim 1 wherein, said means for drawing gases from said receiving tank

and introducing said gases to said aqueous solution comprises;

a venturi located in said circulation pipeline intermediate said means for pumping and said second end of said circulation pipeline and a low pressure pipeline having one end in communication with said venturi and the other end in communication with said receiving tank.

3. The apparatus of claim 1 wherein;

said means for controllably introducing a neutralizing agent into said aqueous solution introduces it into said circulation pipeline intermediate of said venturi and said second end of said circulation pipeline.

4. The apparatus of claim 2 further comprising;

- a) an adjustable valve in said recirculating pipeline located intermediate of said means of pumping and said venturi, and
- b) a second pipeline branch having an initial start from said adjustable valve, passing into said receiving tank, connecting to a heat exchanger within said receiving tank, continuing therefrom to exit from said receiving tank to enter said treatment tank and discharge in proximity to said second end of the said recirculating pipeline.

5. The apparatus of claim 2 further comprising;

- a) an adjustable valve in said recirculating pipeline located intermediate of said means of pumping and said venturi, and

- b) a bypass pipeline having an initial start from said adjustable valve and returning to said treatment tank to discharge in proximity to said second end of said recirculating pipeline.
6. The apparatus of claim 1 wherein said apparatus further includes an external source for heating said aqueous media.
 7. The apparatus of claim 1 wherein said apparatus is constructed as a portable apparatus disposed upon a wheeled frame.
 8. The apparatus of claim 5 wherein said receiving tank and treatment tank are oriented in a stacked configuration on said wheeled frame.
 9. The apparatus of claim 1 wherein said neutralizer is carbon dioxide.
 10. The apparatus of claim 1 wherein said neutralizer is muriatic acid.
 11. The apparatus of claim 1 wherein said aqueous media is comprised of water.
 12. A method of separating and neutralizing entrained ammonia from an oil stream being removed from a refrigeration system, comprising the steps of:
 - a) removing the ammonia-entrained oil supply from said refrigeration system and placing

- said ammonia-entrained oil supply into a receiving tank;
- b) heating said receiving tank to above a temperature required to evaporate the entrained ammonia from said oil supply, whereupon said released gaseous ammonia rises and enters a first end of a transfer pipeline extending from the top of said receiving tank and travels through said transfer pipeline into a treatment tank;
 - c) mixing said released gaseous ammonia with an aqueous media in said treatment tank by orienting the second end of said transfer pipeline at or above the level of said aqueous media in said treatment tank;
 - d) placing a neutralizing agent into said aqueous media; and
 - e) pumping the mixture of said aqueous media, acid and released ammonia from said treatment tank, circulating said mixture through a closed system of piping for return to said treatment tank.
13. The method of claim 10 wherein said receiving tank further includes an external source for heating the contents of said receiving tank.
14. The method of claim 10 wherein said receiving tank, treatment tank, transfer piping, recirculating piping and all associated equipment are disposed upon a wheeled frame.
15. The method of claim 12 wherein said receiving tank and treatment tank are oriented in a stacked configuration on said wheeled frame.

16. The method of claim 10 wherein said neutralizing agent is carbon dioxide.
17. The method of claim 10 wherein said neutralizing agent is muriatic acid.
18. The method of claim 10 wherein said aqueous media is comprised of water.
19. A method of separating and neutralizing entrained ammonia from an oil stream being removed from a refrigeration system, comprising the steps of:
 - a) containing a quantity of aqueous solution in a treatment tank;
 - b) pumping said aqueous solution through a first pipeline both originating and terminating in said treatment tank;
 - c) drawing gases from a receiving tank, creating a pressure in said receiving tank lower than the pressure of said refrigeration system;
 - d) connecting said receiving tank to said refrigeration system so that the lower pressure in said receiving tank removes said oil stream from said refrigeration system;
 - e) further drawing ammonia gas from said receiving tank and introducing said ammonia gas into said aqueous solution; and
 - f) adding a neutralizing agent to said aqueous solution as needed.
20. The method of claim 19 wherein;
 - a venturi located in said first pipeline is used to draw off said gases and said

ammonia gas from said receiving tank and to introduce said gases and said ammonia gas into said aqueous solution.

21. The method of claim 19 wherein;

said neutralizing agent is added in said first pipeline.

22. The method of claim 19 wherein;

an adjustable valve in said first pipeline allows said aqueous solution to flow through a second pipeline which connects to a heat exchanger within said receiving tank and then exits said receiving tank to enter and discharge into said treatment tank.